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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/539,458	03/30/2000	Mark S. Chang	1346P/DA01028	8108

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EXAMINER

PHAM, HOAI V

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 01/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/539,458

Applicant(s)

CHANG ET AL.

Examiner

Hoai v. Pham

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/21/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 8-21 is/are pending in the application.
- 4a) Of the above claim(s) 8-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 17, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al. [U.S. Pat. 6,197,639] previously applied.

With respect to claim 1, Lee et al. (fig. 12, cols. 2-5) discloses a flash memory device comprising:

a plurality of gate stacks including a plurality of floating gates (57a) and a plurality of control gates (63a) disposed on a semiconductor substrate (51);

at least one component (57, 63) including a polysilicon layer having a top surface, wherein the at least one component (57, 63) is formed on a field oxide region (53) configured to separate the plurality of gate stacks;

a silicide (65a) on the top surface of the polysilicon layer of the at least one component (57, 63); and

Art Unit: 2814

an insulating layer (81) covering the plurality of gate stacks, the at least one component and the silicide, the insulating layer having a plurality of contact holes (85, 87, 91) therein.

With respect to claim 17, Lee et al. (fig. 12, cols. 2-5) discloses a flash memory device comprising:

- a gate insulating layer (55);

- a gate stack formed on the insulating layer, wherein the gate stack comprises:

 - a first floating gate (57a);

 - an insulating layer (58a) formed on the first floating gate (57a); and

 - a second polysilicon layer (63a) formed on the insulating layer.

- a field oxide region (53) located adjacent to the gate insulating layer;

- a component (57, 63) located on the field oxide region (53), wherein the component (57, 63) is formed from one of the first and the second polysilicon layer; and

- a silicide layer (65a) formed on the component.

With respect to claim 18, Lee et al. discloses that the silicide layer (65a) prevents etching through the polysilicon layer (63) (see fig. 10).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2, 3, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. [U.S. Pat. 6,197,639] previously applied, in view of Ma et al. [U.S. Pat. 5,939,753] previously applied.

Lee et al. discloses all the limitation as claimed above except: the silicide includes a titanium silicide or a cobalt silicide. However, Ma et al. discloses that the silicide layer (108, 109) formed on the polysilicon (58) can be formed of tungsten silicide, molybdenum silicide, titanium silicide or cobalt silicide (see col. 7, lines 48-49 and col. 8, lines 1-7). Therefore, it would have been obvious to one of ordinary skill in the art at to select either titanium silicide or cobalt silicide on the component in the

Art Unit: 2814

device of Lee et al. because as taught by Ma et al., such materials are equivalence for their use in the semiconductor art as to form a dual-layer structure with low resistance, which is made up of a polysilicon and metal silicide.

Allowable Subject Matter

6. Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed 12/21/04 have been fully considered but they are not persuasive.

- Applicant argues that Lee does not disclose "at least one component including a polysilicon layer having a top surface, wherein the at least one component is formed on a field oxide region configured to separate the plurality of gate stacks".

Applicant's argument is not persuasive because Lee clearly discloses at least one component (57, 63) including a polysilicon layer having a top surface, wherein the at least one component (57, 63) is formed on a field oxide region (53) configured to separate the plurality of gate stacks (57a, 63a)(see fig. 12 and col. 3, lines 40-67).

- Applicant argues that "There is no language in Lee that discloses that polysilicon layers 57, 63 are a component".

Applicant's argument is not persuasive because Applicant does not claim what kind device of a component. Also, "component" is a name. It can be interpreted as any device. Therefore, Lee meets and anticipates the claim language.

- Applicant argues that Lee does not disclose "a silicide on the top surface of the polysilicon layer of the at least one component; and an insulating layer covering the plurality of gate stacks, the at least one component and the silicide, the insulating layer having a plurality of contact holes therein."

Applicant's argument is not persuasive because Lee clearly discloses a silicide (65a) on the top surface of the polysilicon layer of the at least one component (57, 63); and an insulating layer (81) covering the plurality of gate stacks, the at least one component and the silicide, the insulating layer having a plurality of contact holes (85, 87, 91) therein (see fig. 12).

- Applicant argues that Lee does not disclose "a component located on said field oxide region, wherein said component is formed from one of said first and said second polysilicon layer".

Applicant's argument is not persuasive because the claim language of "wherein said component is formed **from one of** said first and said second polysilicon layer" can include of both first and second polysilicon.

- In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the

Art Unit: 2814

references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Lee et al. discloses that the silicide layer (65) is tungsten silicide. Lee et al. does not disclose that the silicide includes a titanium silicide or a cobalt silicide. However, Ma et al. discloses that the silicide layer (108, 109) formed on the polysilicon (58) can be formed of tungsten silicide, molybdenum silicide, titanium silicide or cobalt silicide (see col. 7, lines 48-49 and col. 8, lines 1-7). Therefore, it would have been obvious to one of ordinary skill in the art at to select either titanium silicide or cobalt silicide on the component in the device of Lee et al. because as taught by Ma et al., such materials are equivalence for their use in the semiconductor art as to form a dual-layer structure with low resistance, which is made up of a polysilicon and metal silicide.

- In response to applicant's argument that by combining Lee with Ma, Lee would no longer be able to reduce etching damage as the silicide layer pattern 65a would no longer cover the entire second polysilicide layer 63a because Ma teaches that the silicide covers portions of a polysilicon resistor. Applicant's argument is not persuasive because the combining Lee with Ma is the silicide material and nothing to do with Ma's device that the silicide covers portions of a polysilicon resistor.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2814

9. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoai v. Pham whose telephone number is 571-272-1715. The examiner can normally be reached on M-F.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


HOAI PHAM
PRIMARY EXAMINER